BARGAINING AND SUSTAINABILITY: THE ARGENTINE DEBT SWAP OF 2005.

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Abstract

When Argentine sovereign default in December 2001 led to a collapse of the peso, the burden of dollar debt became demonstrably unsustainable. But it was not clear what restructuring was feasible, nor when. Eventually, in 2005 after a delay of more than three years, a supermajority of creditors accepted a swap implying a recovery rate of around 37 cents in the dollar. In this paper a bargaining approach is used to explain both the settlement and the delay. We conclude that the agreed swap broadly corresponds to a bargaining outcome where the Argentine government had "first mover" advantage: and that substantial delay occurred as negotiators seeking a sustainable settlement waited for economic recovery. Factors not explicit in the formal framework are also considered -- heterogeneity of creditors, for example, and the role of third parties in promoting "good faith" bargaining.

Keywords: Bargaining, debt restructuring, negotiations, sustainability, efficient delay

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Non technical summary

After a delay of more than three years, most of the Argentine sovereign debt in default was successfully restructured by mid-2005. This episode is important both for those directly involved and also as a marker for the resolution of insolvency crises to come. It is clear, for example, that lenders to emerging markets are exposed to substantial losses -- and to prolonged delay in restructuring. But the proceedings have challenged the idea that the IMF must play a central role in arranging sovereign debt swaps: "Argentina has also become a test case for a vastly reduced role for the IMF and the official sector more broadly in the sovereign debt restructuring process", Roubini and Setser (2004a). The IMF proposal for a Sovereign Debt Restructuring Mechanism – first advanced when Argentina was sliding towards default – was blocked by a broad coalition of borrowers, private lenders and sovereign states including the US; and the Fund itself, stymied by conflict of interest and criticised by both debtor and creditors for its earlier handling of Argentine case, had to withdraw to the sidelines and let creditors and debtor sort things out themselves. What are the new rules of the game?

Some look for a return of the IMF to handling crisis resolution. For Jérome Sgard, the key role it played in the 1980s during the Latin American debt crisis provides the benchmark for its future role in the restructuring of sovereign bonds. "Since at least the 1920's and especially under the classical regime of the 1980s, renegotiation regimes were established under a multilateral umbrella which locked together three key functions: economic expertise and information, third-party arbitration and guarantees of execution. This indeed allowed [reconciliation of] the efficiency and equity criteria which are preconditions for the resolution of any insolvency crisis" Sgard (2004, p 29). In a paper written before the swap was arranged, Roubini and Setser (2004a) gave a number of reasons to suggest that the new approach to debt restructuring would not work, including the wide gap in expectations between creditors looking for 65 cents in the dollar and debtor "restructuring guidelines" promising 25 cents (or less, at crisis discount rates). In their monograph on Bail-ins and Bail-outs, Roubini and Setser (2004b), they conclude: "It is unrealistic to think that … a better process for restructuring sovereign bonds will allow the IMF to disengage from the

sovereign debt restructuring process. …We like bond clauses, but they are no substitute for an active IMF in the resolution of debt crises."

Instead of looking for third party intervention, we examine the Argentine debt swap to see whether a bargaining approach can help to explain both the final settlement and the delay in achieving it. Absent institutional reform, this may reveal the shape of things to come.

A bargaining approach

After a brief account of the Argentine convertibility plan of the 1990s and its collapse in 2002, we describe the initiative taken by the Argentine government at Dubai in 2003 (which we interpret as expressing the constraints imposed by debt sustainability), and the formal offer of early 2005, which has been accepted by 76% of the creditors. A bargaining approach is then applied to help explain both the settlement itself and the protracted delay in achieving it. Bulow and Rogoff (1989) outlined a framework where creditor and debtor bargain over a determinate "pie" representing the gains from trade to the debtor. Here, however, we adopt the approach of Merlo and Wilson (1998) where the size of the pie is uncertain and 'efficient delay' can occur as both parties wait for economic recovery (fearing that early agreement will lock in the recession) [2].

To define the pie to be divided between debtor and creditors, we note that, when confronted with the limited residual[3] indicated by the debtor's restructuring guidelines at Dubai, the creditor response was to *more than double* what the Argentine government estimated was sustainable at that time. Specifically, the Argentine Bondholders' Committee (ABC) called for a recovery rate of 65cents in the dollar on defaulted debt, rather than the 25 cent recovery rate implied by the debtor's guidelines. Scaling up the 'Dubai residual' in line with this demand implies a pie worth almost 3% of GDP.

The Merlo-Wilson model is calibrated on the assumption that each party has equal probability of being proposer (as to restructuring), and, without knowing who will act, the expected split would be 50:50. There is, however, "first mover" advantage for whoever

[2] We are grateful to Stephen Morris for first suggesting this approach to us.
[3] I.e. the residual remaining for holders of defaulted debt after paying IFIs and other senior creditors in full.

actually proposes. When the debtor has the "first mover" advantage, creditors get only 46% of the pie, receiving a flow transfer of about $1.85bn dollars at 2004 prices. The predicted recovery rate on debt without interest is 41 cents in this bargaining equilibrium, a little better than the actual Buenos Aires offer (estimated to be worth about 37cents). In other words, the model we use predicts a somewhat more generous outcome for the creditors than the actual Argentine offer of early 2005.

Delay

Was the delay in settlement due to political or economic factors? The fact that President Duhalde was only chosen by the congress as interim office-holder until full elections could be held in 2003 may suggest the former were decisive. But the Merlo-Wilson framework shows how economic incentives can cause delay. Broadly speaking, delay is efficient when the *expected annual rate of economic recovery* exceeds and the time *rate of discount*. The logic for this is that any settlement "locks in" the recession: when the condition is satisfied it pays to wait.

We find that during Duhalde's administration the "expected" growth rate greatly exceeded the discount rate: this suggests that debt restructuring would have been postponed even if there had been no problem of legitimacy. That political legitimacy itself was not the critical factor is supported by the fact that delay continued even when President Kirchner was legitimately elected in 2003. (That the expected growth rate still exceeded the discount rate is consistent with continued delay for economic reasons.)

Challenges to the bargaining framework

Economic incentives for delay may be captured in broad terms by the bargaining framework: but what of the specific commitments made at Dubai? Were these sustainability conditions the decisive factor?

Comparing bargaining outcome with the sustainability constraint, suggests that debt-restructuring in 2003 with the economy in depression would have violated the sustainability condition. But as the economy recovered the sustainability condition increased, so that by 2004 it roughly matches the bargaining equilibrium we have calculated. Ipso facto, the actual offer made by Argentine government in 2005 (assuming the recovery rate on offer is extended to those outside the swap) also satisfies sustainability. Thus, though no formal account is taken of the 3% sustainability condition in the model we use, it appears that the logic of the bargaining approach is consistent with the need for a durable settlement: creditors who were willing to wait until the debtor could pay more effectively allowed Argentina to propose a sustainable settlement.

Other factors not explicit in the formal framework are also considered - creditor heterogeneity, for example, and institutional features that may have helped enforce 'good faith' bargaining -- political and economic pressure by G7 creditor countries, or by the IMF acting as their agent, for example, and the legal decisions made by Judge Griesa in New York, the official responsible for adjudicating creditors' claims under US law.

Conclusion

In a positive analysis, a bargaining approach is used to explain the recovery rates in the Argentine sovereign debt swap of 2005 and to account for the considerable lapse of time it took to arrange - over three years from default to majority acceptance of the swap. With state-contingent contracts ruled out by political factors, expectations of economic recovery could account for delay by negotiators seeking a sustainable settlement.

Debt restructuring is not yet complete, as only 76% of the old bonds have been swapped. (The fall in the price of defaulted bonds after the swap --from around 40 cents to 32 cents for 2008 bonds, for example -- suggests that holdouts may, on this occasion, suffer a bigger haircut than those who settled – perhaps receiving the new performing bonds as in the 2005 offer *less* the coupons paid pending the final resolution.) So there are clearly issues of creditor heterogeneity that need further investigation.

Bargaining and sustainability: the Argentine debt swap of 2005

After a delay of more than three years, most of $100bn of Argentine sovereign debt in default was successfully restructured by mid-2005. This episode is important both for those directly involved and also as a marker for the resolution of insolvency crises to come. It is clear for example, that lenders to emerging markets are exposed to substantial losses - and to prolonged delay in restructuring. But the proceedings have challenged the idea that the IMF must play a central role in arranging sovereign debt swaps, Roubini and Setser (2004a). Its proposed Sovereign Debt Restructuring Mechanism – first advanced when Argentina was sliding towards default – was blocked by a broad coalition of borrowers, private lenders and sovereign states including the US; and the Fund itself, stymied by conflict of interest and criticised by both debtor and creditors for its earlier handling of Argentine case, had to withdraw to the sidelines and let creditors and debtor sort things out themselves. What are the new rules of the game?

Some look for a return of the IMF to handling crisis resolution. For Jérome Sgard, the key role it played in the 1980s during the Latin American debt crisis provides the benchmark for its future role in the restructuring of sovereign bonds. “Since at least the 1920’s and especially under the classical regime of the 1980s, renegotiation regimes were established under a multilateral umbrella which locked together three key functions: economic expertise and information, third-party arbitration and guarantees of execution. This indeed allowed [reconciliation of] the efficiency and equity criteria which are preconditions for the resolution of any insolvency crisis” (Sgard, 2004, p 29). Likewise, Roubini and Setser (2004b) assert: “It is unrealistic to think that … a better process for restructuring sovereign bonds will allow the IMF to disengage from the sovereign debt restructuring process. …We like bond clauses, but they are no substitute for an active IMF in the resolution of debt crises.”

Given the *status quo,* however, we examine the current Argentine debt swap to see whether bargaining theory can help to explain both the final settlement and the delay in achieving it. Absent institutional reform, this may reveal the shape of things to come.

After a brief account of the Argentine convertibility plan of the 1990s and its collapse in 2002, we describe the initiative taken by the Argentine government at Dubai in 2003 (which we interpret as expressing the constraints of sustainability), and the formal offer of early 2005, which has been accepted by 76% of the creditors. A bargaining approach is then applied to help explain both the settlement itself and the protracted delay in achieving it[4]. Bulow and Rogoff (1989) outlined a framework where creditor and debtor bargain over a determinate "pie" representing the gains from trade to the debtor. Here, however, we adopt the approach of Merlo and Wilson (1998) where the size of the pie is uncertain and 'efficient delay' can occur as both parties wait for economic recovery (fearing that early agreement will lock in the recession) [5]. We also discuss how the bargaining equilibria relate to the sustainability criteria adopted at Dubai.

Factors not explicit in the formal framework are also considered - creditor heterogeneity, for example, and various institutional features that may have helped enforce 'good faith' bargaining -- political and economic pressure by G7 creditor countries, or by the IMF acting as their agent[6], for example, and the legal decisions made by Judge Griesa in New York, the judge responsible for adjudicating creditors' claims under US law. We conclude that while the model of bilateral bargaining provides a useful framework for explaining outcome of the current debt swap and the delay in achieving it there are open questions of heterogeneous beliefs and inter-creditor conflict needing further investigation.

[4] "In Pakistan, Ukraine, Ecuador, Russia and Uruguay over 90% of the creditors accept[ed] the debtor's initial offer… Only Russia's restructuring took more than one year, and no restructuring took more than two years." Roubini and Sester (2004)
[5] We are grateful to Stephen Morris for first suggesting this approach ..
[6] G7 countries have 45.3 % of votes in IMF, which implies that G7 wishes are not strictly coalition proof. But the power indices discussed in Leech (2002) imply that, if G7 acts as a cohesive group, it has almost complete dominance over the decisions made by the organisatio n

1. The Argentine debt swap: a Bargaining approach

1 (a) Background

The Convertibility Plan and its collapse

Following a bout of hyperinflation in 1989-90, Argentina adopted a Convertibility Plan "which stipulated a one-for-one parity between the Argentine peso and the US dollar and guaranteed the right to convert pesos at that rate, meaning that devaluation would require a new act to be passed by Congress" (Williamson, 1995). For the following decade Argentine was the largest country in the world employing a currency board system, a monetary arrangement in which the country abandons its monetary sovereignty in favour of a rule which links its monetary base to the inflow and outflow of dollars on its overall balance of payments.

Inflation ended promptly; and the economy grew rapidly in the early 1990s. But the strength of the dollar against the euro and devaluations by trading partners such as Mexico and Brazil made it increasingly difficult to maintain the convertibility regime. Finally, with capital outflows leading to repeated bank runs, the peg proved unsustainable, and the end of the currency board was likened to a 'slow-motion train crash' both because it was widely foreseen and because its effects were so catastrophic. Izquierdo (2004) explains why a highly indebted, dollarized and relatively closed economy like Argentina was particularly vulnerable to sudden stops; and Bleaney (2004) discusses the relative contributions of weak policy and bad luck. Debt default was declared in December 2001, and the currency soon fell by more than two thirds of its value against the dollar. The country was thrown into constitutional chaos and economic despair, with unemployment rising to 20% and half the population falling below the poverty line. Negotiations over debt restructuring were postponed until a new President was elected and economic recovery got under way.

When the currency board looked increasingly unviable in 2001, the IMF had proposed a Sovereign Debt Restructuring Mechanism modelled on Chapter 11 of the US Bankruptcy Code (which allows the debtor to manage the restructuring of creditor claims under court supervision), Krueger (2002). This effort to formalise the process - and to put the IMF at the centre of the stage - was dropped in the face of objections from creditor representatives, large debtors and the US Treasury. Consequently the process of restructuring was left to a large extent for negotiation between the sovereign government and the bondholders, using the procedures of the courts under whose laws the debt was issued. The US court in New York in particular has played a key role, the judge there having to decide whether or not the debtor is negotiating 'in good faith': and, if not, what sanctions may be applicable. Before sketching a framework for analysing good faith bargaining, however, we first outline the size of the problem to be resolved, the sustainability constraints outlined by the debtor and the formal offer made in 2005.

Drowning in debt

After the peso collapsed from its peg of one-to-one with the dollar, the ratio of Argentina's dollar-denominated sovereign debt to its national income rose to alarming levels. By 2003, the amount of dollar debt outstanding came to about $182 billion, of which $81 billion was owed to Preferred debtors[7] with the remainder owed to private creditors, about $101billion including unpaid interest, see Table 1. At an exchange rate of three pesos to the dollar, sovereign indebtedness amounted to about 140% of 2003 GDP, a ratio more than double Maastricht target of 60%, and almost five times the analogous figure of 30% suggested for emerging markets. At a real interest rate of ten and a half per cent[8], the cost of servicing the debt to private creditors (including interest due) would have been over ten billion dollars. Adding this sum (which, after default, was not being paid) to the flow for preferred debt that was being serviced ($2.8 bn), gives a total cost of over thirteen billion dollars: so fully servicing government debt from a GPD of $130 billion without further borrowing would

[7] International Financial Institutions and 'new issue' bonds (those issued during the crisis to domestic depositors and to recapitalise the banks).

[8] Damill et al (2005) report a discount rate for emerging market of 12-14% at that time. An inflation correction can be obtained by subtracting the yield on medium-term indexed securities (TIPs) from US benchmark government bonds, giving a figure of about 2.75%. We round this to 2.5% and subtract it from the lower end of Damill's range to give a real rate of 10.5% used in the table.

have required a primary surplus of over ten percent of national income. This was clearly infeasible, so a write-down was necessary - as acknowledged by the Argentine Government at the IMF/World Bank meetings in Dubai in September 2003.

The Dubai initiative – guidelines for sustainability

The first key element of the Argentine initiative was the decision to allocate *at most three percent of GDP for servicing sovereign debt*; the second was to finance its service by a (primary) fiscal surplus and not by further borrowing; and the final element was to privilege *preferred creditors with full compensation* despite the threefold increase in the peso price of the dollar. Given the cost of servicing these preferred creditors (estimated at almost $3bn dollars) and the depressed level of GDP with Argentina in recession, these sustainability constraints left a sum of only about a billion dollars - a 'Dubai residual' of *less than one percent of GDP* - for servicing private debt holders after the swap (Table 1, column 3).

Table 1: Dubai initiative: Debt outstanding and sustainable debt service.

	Gov't Dollar debt	Service cost(2)@ 10.5%	Debt service proposed at Dubai	Recovery Rate(3)
Total debt	$182 (140% of GDP)		$3.9 (3.0 % of GDP)	
Preferred Creditors	$81		$ 2.8	
Others *including* past-due interest	$101	$10.6	**$1.1** (0.8 % of GDP)	10c
Others *excluding* PDI	$81	$8.5	$1.1	13c (4)

Notes (1): 2003 GDP approx $130bn (GDP at current market prices of 376bn pesos[9] converted at 2.90)
(2): For source of real rate of 10.5% see footnote.
(3): Recovery rate = debt service / service cost
(4): Market value of $1.1bn capitalised at 10.5% = $10.5bn which is 13% of $81bn

At a post-crisis real interest rate of about five percent, a settlement on those terms in 2003 would have represented a recovery rate of only 27% on debt without PDI of $81 billion;

[9] Ministerio de Economía y Producción (2005, Informe 51)

and this was how it was described by the Argentine government[10]. But at the real interest rates prevailing at the time, the recovery rate was only about half that: and this was how it was treated in the press, e.g. "… Argentina's offer is worth less than 10 cents on the dollar." *Financial Times* Intelligence unit, 8 March 2004.The figures in the last column, using the rate of 10.5%, imply a recovery rate for creditors of only 13c on debt without PDI; and ten cents on debt with past due interest.

Why should the Argentine government have chosen to impose such a tight constraint on the resources available to private creditors? The answer, we believe, is its determination to achieve a sustainable settlement, and so to avoid a repeat of the default which had led to historically unprecedented social and economic disruption. (How the sustainability constraints relate to the bargaining equilibria of this paper is discussed further below.)

The Buenos Aires offer

When a formal offer of a swap was finally made in early 2005, it was worth about 37 cents in the dollar[11]. The strong recovery of the economy had - given the fixed dollar cost of servicing preferred creditors - generated a substantial increase in the resources available to pay private creditors, Damill et al. (2005); and the decline in real interest rates had increased the market's valuation of service flows on offer. As a crude estimate of the "permanent" flow of real resources implicit in the swap we take 37% of the full cost of servicing dollar debt at a post crisis real interest rate of 5.5%[12]: this gives the figure of $1.65bn for private creditors[13] shown in table 2, a real flow of approximately 1.1% of 2004 GDP.

A recovery rate of 37 cents in the dollar on outstanding may sound like a generous settlement - but this is without taking into account past due interest. The value of the new

[10] The Argentine Bondholders Committee promptly responded by calling for a recovery rate of 60%, i.e. about two and a half times the 25% figure proposed by the government. We use the ratio 60/25 = 2.4 to estimate the size of the pie being bargained over.
[11] This was the cum-dividend offer made to holders of dollar par bonds (see Sabina Amboage, *Clarin*, 5 June 2005). This is broadly consistent with estimates of 30-34 cents (Damill et al, 2005) and 30-35 cents (Financial Times Intelligence 7 March 2005) made at the time of the offer when interest rates were higher.
[12] Obtained by subtracting 2.5% for US inflation from the figure of 8% given for the EMBI without Argentina, Calvo, 2005.
[13] Together with $2.8 billion needed for preferred creditors, the primary surplus needed for debt service is 2.9% of 2004 GDP.

debt is approximately $30 billion at post-crisis real rates, which represents a recovery rate of only 30c in the dollar on debt including past due interest (which had grown to about $100bn, see row 1 of Table 2).

Table 2: **Buenos Aires offer: the flow available for servicing non-performing debt**

	Gov't Dollar debt	Service cost @ 5.5%(2)	Debt service estimated from market prices	Recovery Rate(3)
Debt to be restructured (*including* past-due interest)	$101 (66% of 2004 GDP)	$5.56	$1.65 (1.1% GDP)	30c
Debt to be restructured (*excluding* past-due interest)	$81 (53%)	$4.46	$1.65 (1.1% GDP)	**37c**

Notes (1): 2004 GDP approx $153bn (GDP at current market prices of 447bn[14] pesos converted at 2.92)
(2): Obtained by subtracting 2.5% for US inflation from the figure of 8% given for the EMBI without Argentina, Calvo, 2005.
(3): Recovery rate = debt service / service cost

1(b) A bargaining framework

Can bargaining theory help explain such an outcome? Bulow and Rogoff (1989) showed how Rubinstein's (1982) canonical formulation of non-cooperative bargaining with alternating offers could be applied to debt negotiations. Creditor and debtor bargain over the fraction of GDP representing the value of the gains from trade to the debtor[15]; and a settlement is when both agree on the share to be allocated to the creditors. Where all the parameters are common knowledge and both agents are rational, a Pareto-efficient settlement is reached without delay. In a paper written soon after the Dubai initiative, this approach was used to anticipate what might emerge from the debt negotiations, providing a forecast settlement of between 31 and 40 cents in the dollar depending on the relative rates of discount of the parties concerned, Miller and Fronti, 2003.[16]

[14] Ministerio de Economía y Producción (2005, Informe 51)
[15] Trade being the hostage to the debt negotiations, the gains from trade will be lost if they fail.
[16] In the paper cited, the estimates ranged from 31 to 35 cents; press reports, Clarin 18 Dec 2003, referred to an earlier estimate of 40 cents based on different assumptions as to relative interest rates.

While it may have produced a reasonable forecast of the final outcome, this approach failed to explain the delay. Absent contingent contracts, Merlo and Wilson (1998) have shown that both parties might accept delay if the pie is expected to increase with economic recovery.[17] Their analysis also captures the important idea that an early agreement might postpone recovery.[18] Because it explains delay and crudely captures the idea that growth is endogenous, this alternative bargaining framework is adopted in this paper. Technical details of the analysis are available in Miller and García-Fronti, 2005.

1 (c) Bargaining in the case of Argentina

Defining the pie

How to define the pie to be divided between debtor and creditors? The estimate we use is not based on explicit calculations of gains from trade as in Bulow and Rogoff, but on "looking at the cards" of the creditors to see what they revealed of the gains they hoped to extract[19]. Note that, when confronted with the limited resources indicated by the debtor in the Dubai initiative, the creditor response was to *more than double* what the Argentine government estimated was sustainable at that time: specifically, the Argentine Bondholders' Committee (ABC) called for a recovery rate in the region of two thirds of the debt outstanding. Scaling up the 'Dubai residual' in line with this demand implied a pie worth about 2.64% GDP[20].

What this implies for the situation in 2004 is shown in the first row of Table 3: applying the same percentage to the higher level of GDP gives an *annual flow* of about $ 4 billion at constant 2004 prices as an estimate of the pie to be divided. Clearly allocating everything to

[17] As an illustration of their approach, they suggest that restructuring Latin America debt in the 1980s was postponed to allow US banks to provision for the losses involved in writing down emerging market debt: without delay the banks would have been in serious trouble.
[18] This idea, emphasized by Daniel Heymann and others, was explored in Miller and García-Fronti (2004) using an explicit endogenous grow model.
[19] The procedure used here is as described in Miller and Garcia-Fronti (2003): in conversation, Rogoff considered it a neat alternative to estimating the gains from trade.
[20] 2.64% = 60/25 * 1.1% where 60% is the ABC response, 25% is Dubai proposal and 1.1% is the Dubai residual, cf. Miller and Fronti (2003).

the creditors would have violated the Dubai sustainability constraint[21]. So how was it to be divided?

Table 3: Dividing the Pie: Creditor's payoffs on restructured debt

	Fraction of pie for the creditors	Percent of GDP in 2004	2004 Dollars Billion	Recovery Rate(1) (on debt w/o interest)	Required primary surplus (2)
Size of pie (3)	100%	2.6 %	$4	90 cents	4.4 %
Unconditional Bargaining outcome (4)	50%	1.3%	$2	45 cents	3.1%
Bargaining Outcome with Argentina as first mover (5)	46%	1.2%	$1.85	41cents	3.0%
Actual Buenos Aires offer (6)	47%	1.1%	$1.65	37cents	2.9%
Sustainability (7)	*45%*	*1.2%*	*$1.79*	*40 cents*	*3.0%*

Notes (1) Calculated as ratio of post-swap interest flows (column 3) to (notional) pre-swap interest flows of $4.46bn on a total debt of $81bn as in Table 1, applying an interest rate of 5.5% (the EMBI rate without Argentina from Calvo (2005) less 2.5% for US inflation)
(2) The primary surplus (including $2.8bn for senior creditors, see Table 1) needed to stabilize government debt in real terms (and not relative to GDP).
(3) Based on the ABC response in Dubai, updated to 2004 GDP.
(4) Source: Table 2. The required primary surplus is calculated as $2.8bn + $2bn = $4.8bn, which is 3.1% of GDP of $153bn
(5) Conditional on Argentina making the first offer.
(6) See table 2, row 2
(7) See below

Ex-ante forecast: "Splitting the pie"

To see the predicted settlement of bargaining in good faith and how it compares with the offer which has been accepted, we turn to the MW framework, starting with the unconditional forecast when the identity of the proposer (who actually makes the offer) is not yet determined. Assuming equal probability of being proposer, the forecast is simply to "split the pie": if neither player knows whether it will have "first mover" advantage, each

[21] As indicated in the first line of Table 3 it would have implied a recovery rate of 90% (on debt excluding rolled up interest) and a total servicing cost of over 4.4% of GDP when account is taken of the cost of senior debt.

expects half the pie[22]. In this bargaining equilibrium, creditors would expect a flow transfer of about $2bn dollars at 2004 prices – 1.3% of GDP (see Table 3, second row); this represents a recovery rate of 45cents in the dollar on debt without interest.[23]

The case where Argentina has first mover advantage

If Argentina is the proposer, however, it will gain a tactical advantage, so creditors will get less than half the pie. Specifically, when Argentina has "first mover" advantage, creditors will get only 46% of the pie[24], receiving a flow transfer of about $1.85bn dollars at 2004 prices, Table 3 line 3. The implicit recovery rate on debt without interest falls to 41 cents in this case; but the creditors would still do better than in the actual Buenos Aires offer (see column 4 of table 3): so the model we use with symmetric ex-ante bargaining power predicts a somewhat more generous outcome for the creditors[25] than the actual Argentine offer of early 2005. (It is nevertheless consistent with the sustainability criteria, as we show below.)

Assuming a process of bargaining in good faith, Figure 1 indicates schematically how the increase in GDP may have affected the size of the settlement. The pie after economic recovery is shown as the solid line (estimated at $4bn, being 2.64% of 2004 GDP) and the bargaining predictions are shown labelled as points S (Split the pie) and F (where Argentina has first mover advantage). The actual Buenos Aires offer, shown at point B, gives creditors less than either of the bargaining outcomes – and gives the debtor correspondingly more. The improvement for Argentina over splitting the pie is the reduction of 8 cents in the recovery rate (table 3 column 4): half of which is accounted for the tactical first mover advantage. To account for the rest, one has to increase the strategic power for debtor by increasing the ex-ante probability of being proposer (α) above a half.[26]

[22] As Binmore (1992) points out, this prediction corresponds to the outcome of *cooperative* bargaining where both parties have the same bargaining power, Nash (1950)

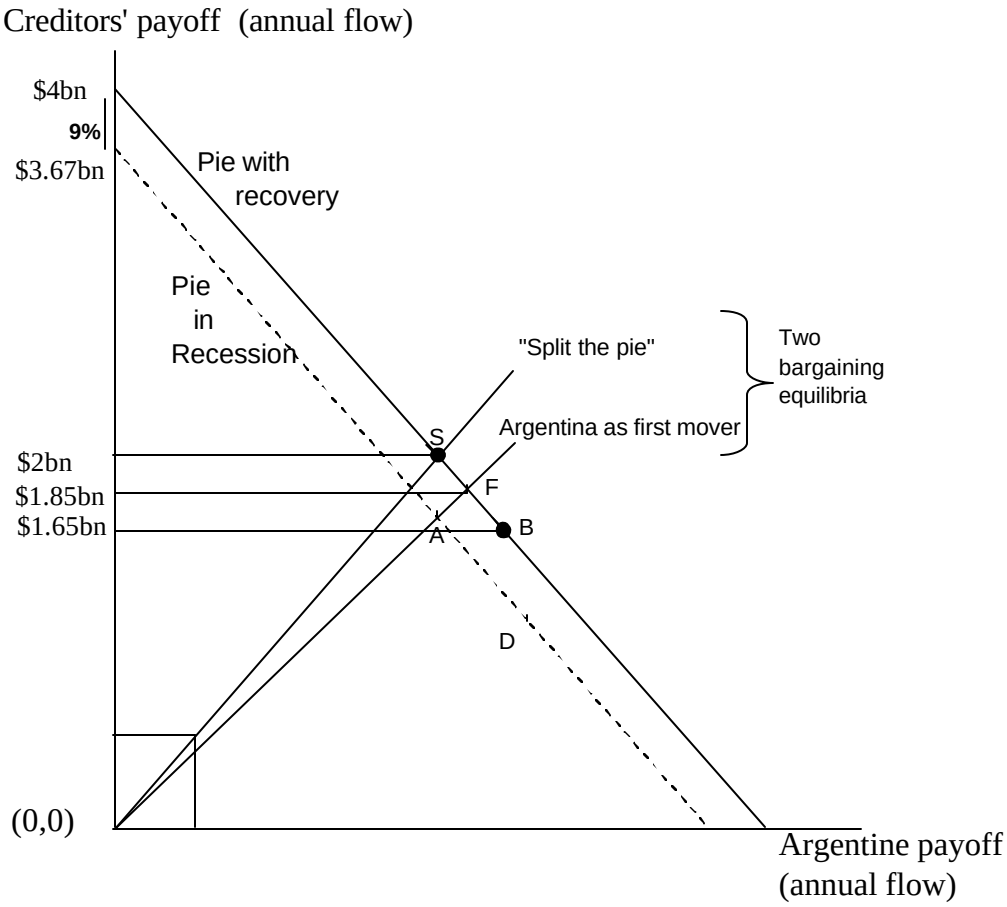
[23] This represents a recovery rate of 36 % on debt including past due interest (PDI), which has an interesting interpretation: it implies that debt including PDI is broadly written down in line with the peso, i.e. dollar debt is 'pesified'.

[24] This is on the assumption that there is equal ex-ante probability of being proposer, that the annual discount rate is 4% and assume also that settlement only takes place after economic recovery. For further details, see Miller and García-Fronti, 2005.

[25] But this bargaining prediction – with first mover advantage to Argentina -- is consistent with the position taken by the Argentine government at Dubai when it decided to allocate 3% of GDP for debt service, a topic we return to later.

[26] Specifically, Miller and García-Fronti,(2005). show that the MW framework fits the Buenos Aires settlement (of $1.65bn for creditors) if α is equal to 55%.

FIGURE 1: Settlement after economic recovery: from Dubai to Buenos Aires.



The smaller pie in recession (a figure of $3.67b, being 2.64% of 2003 GDP expressed at 2004 prices) is indicated by the dashed line in the figure -- where the increase in the size of the pie due to the recovery of the economy is 9% in real terms. (Point D indicates the flow of resources available for the creditors announced in Dubai measured on the same scale, clearly a good deal less favourable to the creditors than any of the bargaining outcomes discussed above: we indicate later how it may be interpreted as expressing a sustainability constraint rather than a bargaining offer.) By comparing the payoffs at points A and S, it seems clear that the creditor will tempted to delay, partly to gain a share of the growth

dividend and possibly to become first mover. But uncertainty about economic recovery and the cost of waiting need to be taken into account.

Why the delay?

There is no doubt that political factors played an important role in the timing of the events. If Argentina could have credibly committed to deliver more to creditors when the economy had recovered, then creditors might have agreed much earlier to what would in effect have been a state-contingent grace period. That such state-contingent contracts were not acceptable may be attributed to political factors. Kohlscheen (2005) has argued, for example, that presidential systems are, in general, less to be trusted than their parliamentary counterparts; and there was, in this case, an added problem of legitimacy as the country was being governed by an interim administration after default. When President Duhalde took office in early 2002 to complete the remainder of the term for which President De La Rua had initially been elected, he "took the decision to be only a transition between the government of De La Rua and the next government and for this reason did not pursue outstanding structural reforms, among which debt resolution was one of the most important" (Bruno, 2004, p.162).

Was the political vacuum before June 2003 a *necessary* condition for the absence of an early offer? Though highly stylised, the Merlo-Wilson framework, where the size of the pie is variable, allows us to address this question. The condition for delay involves comparing the size of the pie in recession and with its future expected value (Merlo-Wilson, 1988, p.49). In particular, delay is efficient when the *expected annual rate of recovery* exceeds and the time *rate of discount* [27]. The logic for this is that any settlement "locks in" the recession; when the condition is satisfied it pays to wait.

Table 4, column 1 shows that the recorded rate of recovery during Duhalde's administration ran at about 18% at annual rate. On the conservative assumption that this was only given a probability of 50% ex-ante, the "expected" growth rate of about 9% shown in the second

[27] See Miller and García-Fronti (2005) for technical details.

column greatly exceeds the common discount rate of 4% in column 3. This means that debt restructuring would have been postponed even if there had been no problem of legitimacy[28].

Table 4: Why delay? [29]

	Actual average Growth rate (p.a.)	"Expected" average Growth rate (p.a.)	Discount rate
Delay under President Duhalde (2002 Q1 -2003 Q2)	17.60%	8.80%	4.00%
Delay under President Kirschner (2003 Q3 - 2004 Q4)	9.44%	4.72%	4.00%

With the election of President Kirchner in mid-2003, the legitimacy issue was resolved: but delay continued for another year and a half. Can this be explained in the same fashion? Was the recession was still deep enough at the time of the Dubai proposal to lead to further postponement? The numbers in table 4 suggest it was: the "expected" rate of recovery under president Kirchner before 2005 (half the actual) was 4.7% on average, still more than the annual discount rate of 4%: so delay was still economically efficient[30].

The bargaining framework used here, with variable payoffs but no contingent contracts, is capable of explaining the 3-year delay[31]. Political factors contributed essentially because they ruled out the ability to structure creditor's repayment in a way that would allow for recovery. But political legitimacy itself does not appear to be the critical factor: even President Kirchner continued postponing a settlement.

Note that the Argentine government did try to find a way around this problem by offering state-contingent bonds in the debt-restructuring. As recommended by Borensztein and Mauro (2002, 2004), for example, GDP-linked bonds were included in the menu of assets available to creditors. Despite the logic of the situation -- and the arguments advanced by

[28] On the Merlo-Wilson assume that any agreement struck before recovery takes place "locks in" the recession: This is an issue we discuss in section 2.

[29] See Miller and García-Fronti (2005) for technical details of the calculations. Parameters used in this case (Merlo and Wilson, 1998, p. 49-50) are: probability of being proposer α_j =0.5, the transition probabilities are $q_{ij} = 0.5$ and the discount factor is $\beta = 0.962$.

[30] As observers such Daniel Heymman argued at the time

[31] Several observers have argued that the success of the Buenos Aires offer was due to good luck – contingent developments in the world economy. In a stylised way, the framework used here does predict that settlement depends on such random events: if bad luck had postponed the Argentine recovery, there would have been no settlement.

Shiller (1993) as to why such instruments should play a useful role in completing existing asset markets -- creditors showed little enthusiasm for this new form of debt[32]. In the Buenos Aires offer, they only accounted for about 10% of the value of the swap.

Checking the sustainability constraints

Economic incentives for delay are captured in broad terms by the bargaining framework: but what of the specific commitments made at Dubai? What constraints did they impose on the bargaining process? We interpret the commitments as defining a strategy for reducing debt vulnerability – firstly by writing-down debt and then by running fiscal surpluses as we show in figure 2 below.

The commitment to maintain a primary surplus, *s*, at 3% of GDP ensures that debt will be falling relative to GDP, at least below the critical value of the debt/income ratio, d, shown as d* in the figure. This is evident from the dynamics of d which to a linear approximation evolve as:

$$\dot{d} = (r - g)\, d - s = 0.014d - 0.03 \qquad (1)$$

where $s = 0.03$ and $r = x0.04 + (1\text{-}x)\ 0.055$; where x debt excluded from restructuring as a percentage of all debt after restructuring is 0.72; and g=0.03. (Note that in this is this linear approximation we are using post swap values of restructured debt, i.e. this approximation is only valid in the neighborhood of point B)

The dynamics of debt are explosive, with d rising at increasing speed to the right of d* and contracting ever more quickly to the left. At d^* itself, he surplus covers the real interest cost of debt corrected for the growth rate of the economy i.e. $s = (r - g)\, d$, so $\dot{d} = 0$. (This appears to be the stability condition used in p.19 of Calvo (2005), namely that the debt/income ratio should not be rising.)

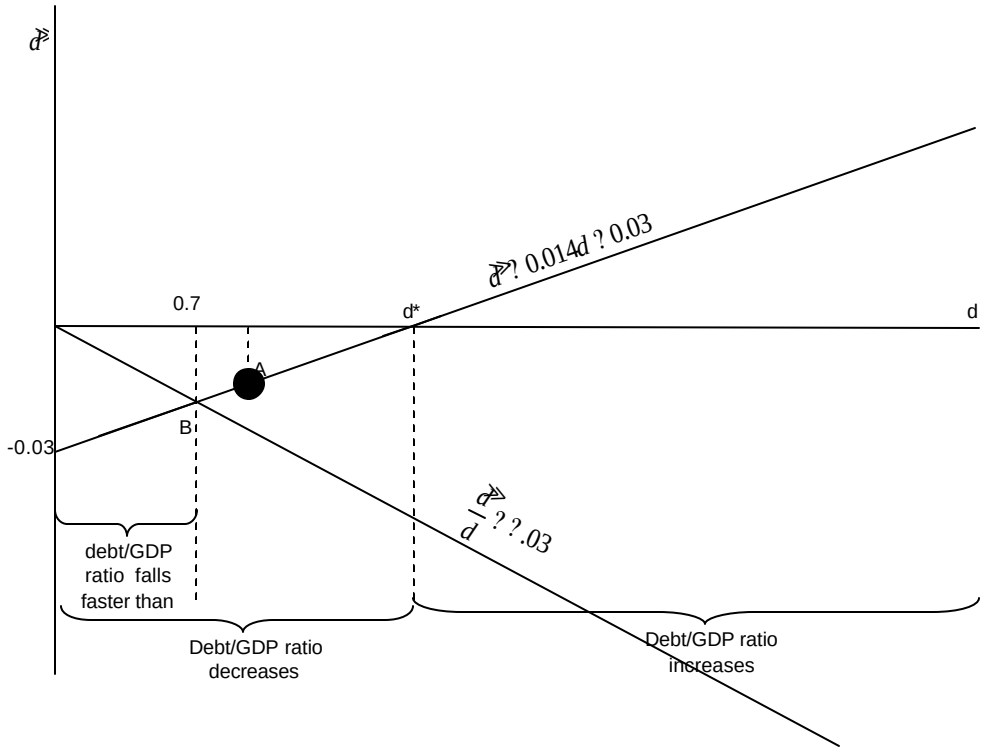
[32] In a related contribution, Arida et al. (2005) discuss the role of "jurisdictional" uncertainty in limiting the availability of long term debt contracts available in Brazil.

To ensure that the contraction of debt would proceed at a rate of at least 3% p.a. after restructuring, the Argentine government imposed a further condition namely that the surplus should cover the real interest cost of debt at the time of restructuring, i.e. $s = rd$. (Later, as the debt/income ratio falls with economic growth, a 3% primary surplus should more than cover interest costs, allowing for dollar debt reduction.)

Substituting this requirement into equation (1) gives the Dubai 'initial condition' of equation (2):

$$\dot{d} = -gd \text{ or } \frac{\dot{d}}{d} = -g = -.03 \qquad (2).$$

Figure 2: Dubai conditions for debt sustainability

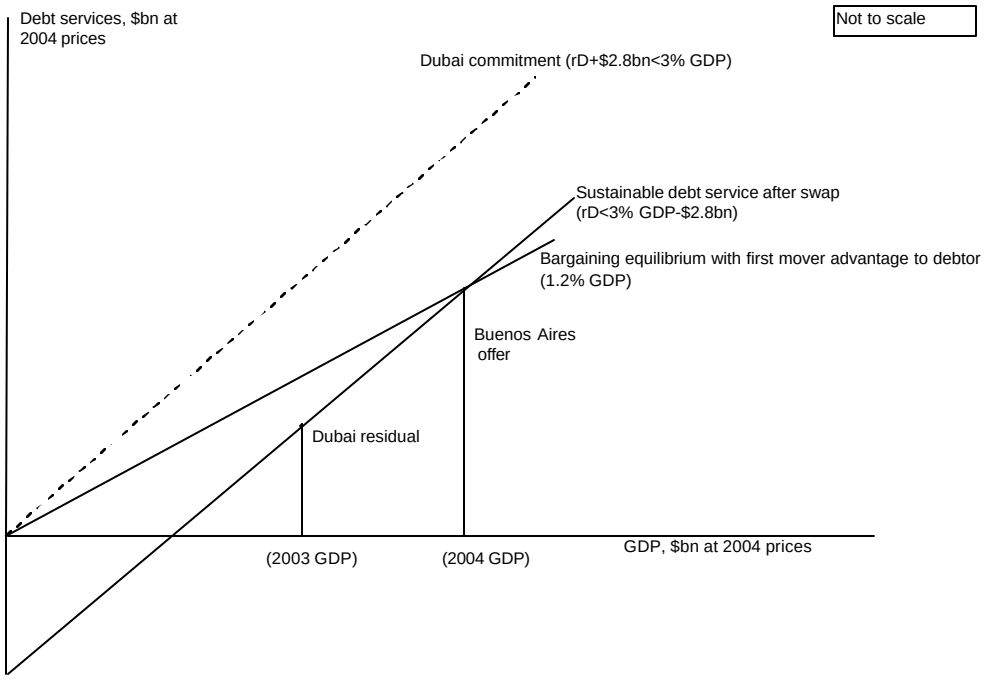


Together these conditions define the strategy for reducing indebtedness. First discretely to reduce the debt level (and increase its rate of contraction) by a write-down, as shown by the move from A to B in the figure: then to reduce the debt/income ration gradually, but at an

increasing rate, as shown by the arrow to left of B. The combination of write-down and fiscal prudence is required to reduce sovereign indebtedness to manageable proportions. An initial debt write-down which succeeded in halving the debt burden, for example, (by cutting the debt income ratio from 150% to 75% GDP) would still leave the economy extremely vulnerable, bearing in mind Stanley Fischer's (2001, Chap 2) comment "even if it is not possible to define an optimal debt-to-GDP ratio, it can safely be concluded that a 60% ratio [as in the Maastricht Treaty] for an emerging market is too high, and that ratios nearer 30 percent are much safer." (Reinhart et al. (2003) suggest an even lower debt/GDP ratio, 15%-20%, as appropriate for emerging market countries facing high sovereign spreads.)

To see how sustainability considerations relate to the bargaining process analysed in the previous section, in Figure 3 we plot equation (2), the Dubai initial condition limiting debt service to 3% of GDP, together with the bargaining equilibrium itself, both plotted as increasing with GDP at 2004 prices. The bargaining equilibrium (with first mover advantage to the debtor) is indicated by the ray whose slope indicates that the creditor expects to get 1.2% of GDP, see Table 3, row 3. The dashed line depicts the 3% of GDP limit on debt service; and the parallel solid line shows the residual available for paying the creditors who own defaulted bonds – settling after servicing preferred debt in full (at a cost of $2.8bn a year).

FIGURE 3: Bargaining subject to a sustainability constraint



The implications are clear enough. Debt restructuring in 2003 with the economy in depression would have violated the sustainability condition: i.e. the Dubai residual lies well below the bargaining equilibrium at that date. But as the economy recovers the sustainability condition increases so that by 2004 it comes out as $1.79bn or 45% of the pie roughly matching the bargaining equilibrium we calculated as $1.85bn in Table 3 row 3. Even if, strictly speaking, sustainability considerations were to limit the creditors claim to 45% of the pie, note that the actual offer made by Argentine government in 2005, valued at $1.65 or 41% of the pie (assuming the recovery rate on offer is extended to those outside the swap), does satisfy this condition.

Although no formal account is taken of the 3% sustainability condition (and the high income elasticity of the constraint), it appears that the logic of our analysis is consistent with the need for a durable settlement: creditors who were willing to wait until the debtor could pay more effectively allowed Argentina to propose a sustainable settlement.

2. Wider considerations

In part one, two-player non-cooperative bargaining theory is used to help explain the nature and timing of the Argentine debt swap. But the approach used takes no explicit account of the multiplicity of creditors, nor of the role of third parties in promoting 'good faith' bargaining. These issues merit further discussion, particularly if this case is to be used as a benchmark for future restructurings.

2 (a) Creditor heterogeneity

Holders of the defaulted sovereign were divided into intrinsically different categories: as well as retail investors from all over the world, there were investment banks and so-called vulture funds. Moreover, as Sgard (2005) points out, there was a "cleavage between the small German, Japanese and especially Italian bondholders (400,000), who bought stocks at par, and specialised investment funds which generally acquired them after default, at a heavily discounted price. The conditions offered by the Argentine government thus imply significant gains for the latter[33] … which may reflect a tacit alliance with the US investment funds." So, despite the heterogeneity of the creditors, and the refusal by the debtor to recognise any of the various creditor committees as negotiating partners, it appears that the activity of investment funds played a coordinating role by buying up distressed bonds and then negotiating with the sovereign. While the New York investment funds may have provided a negotiating counterparty to the sovereign debtor, these coordination services have evidently been supplied at a considerable cost to the average creditor. There is an apparent need for a more impartial and less costly representative of creditors as a whole.

[33] They "… were buying euro-denominated defaulted bonds at below 30 cents on the dollar" - assets to be worth 37 cents after the swap. (Adam Thomson, 28 February 2005, Financial times p.23)

Is there a case for a Bondholder Committee?

One possibility is the appointment of a trustee to ensure inter-creditor equity. But if, as is common with US bonds, the trustee requires unanimity for any change to the financial terms of the bond this leads to a 'hold up' problem where "vultures funds" buy distressed debt and litigate to recover the full value, refusing all offers to restructure the defaulted debt until they are given full compensation; such funds are extremely patient and persistent, being willing to wait for up to a decade in pursuit of full settlement for the bonds they have purchased. An alternative mechanism would be a formal bondholder committee as proposed by Eichengreen and Portes (1995) on the historical model of the 1930s : as Mauro and Yafeh (2003, p.26) note, "In the past … one of the roles of the Corporation of Foreign Bondholders (CFB) [was] to protect small bondholders from large bondholders who might otherwise arrange for a separate, advantageous deal for themselves in exchange for the promise to provide the country with new lending."

In fact, the incorporation of collective action clauses may help to solve the problem of hold-outs. While Kletzer (2004) is relatively optimistic that strengthening CACs will eliminate inefficiency of holdout creditors in the future, however, others such as Fernandez and Fernandez (2004) and Ghosal and Thampanishvong (2005) point out that promoting creditor coordination in this way risks undermining the debtor's incentive to bargain in good faith -- suggesting that there is a role for international financial institutions to complement CACs.

2 (b) Third party intervention and "good faith" bargaining

Role of the US court, G7 and the IMF

There is no doubt that the court in New York sought to encourage the debtor to bargain in good faith. During 2003, for example, when Argentina proved reluctant to negotiate with creditors, Judge Griesa insisted on 'good faith bargaining' as a condition for restraining the

vulture funds: and this may have been instrumental in triggering the Dubai offer. But the cases appearing in court are principally brought by vulture funds who are not representative of the majority of creditors. In practice, it appears that the court has treated the vulture funds as a useful goad to bargaining but not to defining the settlement – the latter has emerged from the activity of investment banks, with the vultures still holding out.

In the context of these negotiations, national law courts have had to decide important issues of principle affecting the fate of nations; so recourse to legal procedures may have reinforced the economic factors for delay discussed above. Creditors have typically been more optimistic about the efficacy of legal sanctions at their disposal than the debtor: when creditors appealed to the doctrine of *pari passu* to justify seizing money paid to senior creditors, for example, Argentina's legal advisers staunchly opposed that view (Buchheit and Pam, 2003) . But the issue remained a matter of legal dispute until January 2005 when the law in Belgium which permitted Elliot Brothers to proceed against Peru on these grounds was repealed. Such delays may reflect the evolution of legal doctrine.

What about the role of International Financial Institutions (IFIs)?[34] The bargaining framework we use assumes both parties to the negotiations suffer from delay – as they cannot consume the pie until agreement is reached - and this provides the incentive to agree. But Argentina was paying no interest on the debt liable to restructuring and suffered little direct disruption of trade flows as a consequence. This 'inside option' - to carry on trading and consuming while negotiating with creditors who are getting no debt service - confers a bargaining advantage to the debtor[35]. The part played by the courts in promoting good faith bargaining and by the IMF/ G7 in protecting creditor rights have, we believe, acted substantially to offset this advantage for debtor.

Outside the law courts, there are two ways this has been achieved. First through direct economic pressure by G7 banks restricting trade credit available to finance Argentine

[34] See Buchheit (2005) for a historical survey. There is a body of research that examines their role in the context of debt renegotiations from a game theoretical perspective, for example Bhattacharya and Detragiache (1994) and Bulow and Rogoff (1988). But in these papers the IFIs were treated as an ex-post mechanism for transferring resources to the debtor, rather than as agents for the international community to ensure good faith bargaining and sustainability in the post default situation.
[35] See Muthoo (1998) for further discussion of inside options.

exports: while state restrictions on Argentine trade may violate WTO obligations, restrictions of trade credit are a legitimate tactic open to creditors to increase their bargaining power, (Kohlscheen and O'Connell 2004). Second, IMF executive directors from creditor countries can use their influence in the IMF to seek either tougher conditionality – an increased fiscal surplus, for example - or an end to rollovers of official lending. (No rollover of outstanding official loans would imply an immediate cash call of around $6bn in the second half of the 2005, for example). Could this not lead to a trial of strength where the debtor counters by threatening to default on its debt to that organisation? Then, according to the Financial Times[36], "The IMF must shrug off such blackmail. If Argentina did default on its multilateral debt it would lose access to World Bank and Inter-American Development Bank credits and many sources of private finance - and risk a broader clash with the entire membership of the IMF."

Is there a case for an arbitration forum?

Historical experience of the 20th century shows that resolution of sovereign default can be assisted by a third party arbitrator placed between debtor and the creditors who can attest the fairness of "burden-sharing" as well as "good faith" bargaining. This was the role of the American Money Doctors at the beginning of the century, then the League of Nations and finally the IMF, Sgard(2005). As a major creditor with senior status, the IMF can hardly play the role of disinterested arbitrator: nor has it done so. But if the IMF is sidelined, who will play that role?

A case can be made for an explicit international forum for arbitration, ideally recognised by all nations under whose jurisdiction debt is issued. In his proposals for a sovereign debt restructuring procedure, Steven Schwarcz outlines how such a tribunal may be constituted.

[36] Editorial comment: "Argentina's duty" Financial Times April 29 2005.

He observes first that:

> "The International Centre for the Settlement of Investment Disputes (ICSID), an autonomous body created under the auspices of the World Bank, provides facilities for the arbitration of investment disputes between contracting States and nationals in other States. A small Secretariat … maintains a panel of multinational arbitrators with recognized competence in the fields of law, commerce, industry and finance."

And goes on to conclude:

> "Thus, ICSID is a useful model to the extent that a tribunal is needed to resolve sovereign debt restructuring disputes. A tribunal based on that model could maintain a panel of neutral arbitrators having recognized competence in bankruptcy and insolvency law. Rules could require panel members to have different nationalities, and to be representative of the principal bankruptcy and insolvency law systems of the world. Similarly, the tribunal's expenses could be met by charging a fee for the arbitration. Finally, the arbitration could follow ICSID's simple format: it would involve a panel of up to three arbitrators who decide disputes by majority vote in accordance with applicable rules of international law, and who render decisions that are binding and not subject to appeal." (Schwarcz 2000, pp1024-6).

Although there was no appeal to an arbitrator in the Argentine case, the Buenos Aires offer accepted by a supermajority (76%) of creditors was tantamount to a "pesification" of Argentine dollar debt (including past due interest). Is this not what an arbitrator would have proposed?[37]

3. Conclusion

In a positive analysis, we have described how a bargaining approach can be used to explain the Argentine sovereign debt swap of 2005, assuming that there are mechanisms to ensure 'good faith' bargaining. The framework also helps to account for the considerable lapse of time in this case – just over three years from default to majority acceptance of the swap.

[37] There is a theoretical literature on the role of arbitration on bargaining outcomes: Manzini and Mariotti (2001), for example, propose a modification of the Rubinstein model where the responder in any period has the option of appealing to arbitration.

Political factors ruled out state contingent contracts, so expectations of economic recovery led to delay by negotiators seeking a sustainable settlement.

After considering the role of third parties in promoting a "good faith" bargaining, the US Court, for example, and the IMF (acting as agent for G7) a case is made for a formal process of arbitration. How creditor heterogeneity has affected the negotiations is also considered; and how coordination has been achieved so far. The coordination problem has not been finally resolved, however, as only 76% of old bonds have been swapped. Creditors outside the swap include vultures seeking full recovery whose attempt to block the swap (by seizing bonds surrendered by other creditors) was ruled as illegal, apparently on the grounds that it threatened the wishes of the supermajority. Could it be that the Manhattan court is managing a world in transition by acting *as if* the defaulted bonds included CACs? (Collective Action Clauses) The fall in the price of defaulted bonds after the swap (from around 40 cents to 32 cents for 2008 bonds, for example) suggests that holdouts may, on this occasion, suffer a bigger debt write down than those who settled – perhaps receiving the new performing bonds as in the 2005 offer *less* the coupons paid pending the final resolution[38].

[38] With CACs, holdouts would have received the offer accepted by the super-majority.

References

Arida, P., E. Bacha and A. Lara-Resende (2005), "Credit, interest, and jurisdictional uncertainty: conjectures on the case of Brazil", in Giavazzi, F. and Ilan Goldfajn (eds.), *Inflation targeting and debt: the case of Brazi*, MIT Press.

Bhattacharya, S. and E. Detragiache (1994) "The role of international institutions in the market of sovereign debt". *Scandinavian Journal of Economics* 96 (4) 515-529.

Binmore, K. (1992): *Fun and Games*: A Text on Game Theory. D.C. Heath.

Bleaney, A. (2004) Argentina's Currency Board Collapse: Weak Policy or Bad Luck? *The World Economy*, 27, 5, 699-714

Borensztein, E. and P. Mauro (2002). "Reviving the case for GDP-indexed bonds." International Monetary Fund Seminar Series No. 2003-62: 1-24.

Borensztein, E. and P. Mauro (2004) "The case for GDP-indexed bonds" *Economic Policy*, 19 (38) pp 165-216, April.

Bruno, E. A. (2004). *El default y la reestructuración de la deuda*. Buenos Aires, República Argentina, Nueva Mayoría.

Buchheit, L (2005) "The Role of the Official Sector in Sovereign Debt Workouts" *Chicago Journal of International Law*. 6(1) pp.333-343.

Buchheit, L and J. Pam (2003) "The Pari Passu Clause in sovereign debt instruments" Working paper. Harvard Law School. http://www.law.harvard.edu/programs/pifs

Bulow, J. and K. Rogoff (1988) "Multilateral negotiation for rescheduling developing countries debt" *IMF Staff Papers.*,644-57, December.

Bulow, J. and K. Rogoff (1989) "A Constant Recontracting Model of Sovereign Debt". *Journal of Political Economy*, 97,no. 1, February:155-78.

Calvo, G. (2005) “Perspectivas financieras de América Latina. Ya es hora de celebrar?” presented at “Desencadenar el Crédito: Como ampliar y estabilizar la banca” in Madrid, 27 Jan 2005.

Camerer, C. (2003). *Behavioural game theory: experiments in strategic interaction*. Princeton, N.J: Princeton University Press.

Damill, M., R. Frenkel and M. Rapetti (2005) “The Argentinean Debt: History, Default, and Restructuring”. Working Paper of Initiative for Policy Dialogue. Columbia University. April.

Dreher, A. and Jensen N. (2003) "Independent Actor or Agent? An Empirical Analysis of the impact of US interests on IMF Conditions" Mimeo. Yale University Leitner Working Paper No. 2003-04

Fernandez, K. and R.B. Fernandez (2004) “Willingness to pay and sovereign debt contracts” Mimeo. Universidad Del CEMA

Fischer, S. (2001) ‘The International Financial System: Crisis and Reform’ Lionel Robbins Lectures. Mimeo. LSE.

Ghosal, S. and K. Thampanishvong (2005), “Sovereign Debt Crisis: Coordination, Bargaining and Moral Hazard” CSGR WP: 159/05. Warwick University. UK.

Izquierdo, A. (2004) Sudden Stops, the Real Exchange Rate and Fiscal Sustainability in Argentina. *The World Economy* 25, 7, Page 903-923.

Kohlscheen, E. (2005) "Sovereign Risk: Constitutions Rule" Mimeo. University of Warwick

Kohlscheen, E. and O'Connell (2004) "A Sovereign Debt Model with Trade Credit and Reserves". Mimeo. University of Warwick.

Krueger, A. (2002) *A New Approach to Sovereign Debt Restructuring*. Washington DC: Internationally Monetary Fund.

Leech, D. (2002), "Voting Power in the Governance of the IMF", *Annals of Operations Research*, 109:373-395

Manzini, P. and M. Mariotti (2001) "Perfect Equilibria in a Model of Bargaining with Arbitration," *Games and Economic Behaviour*, 37, 170–195.

Mauro P. and Y. Yafeh (2003) "The Corporation of Foreign Bondholders" IMF Working Paper: 107. Washington

Merlo, A. and C. Wilson (1998) "Efficient delays in a stochastic model of bargaining". *Economic Theory* 11, 39-55

Miller, M. and J. García-Fronti (2003) "Argentina in Default: The Renegotiation Game". Mimeo. University of Warwick. (Also available online at: http://www2.warwick.ac.uk/fac/soc/csgr/research/keytopic/global/)

Miller, M. and J. García-Fronti (2004) "Sovereign Debt Restructuring: Ending delay, promoting growth". Mimeo. University of Warwick.

Miller, M. and J. Garcia-Fronti (2005) "Bargaining and sustainability: a technical note on apply the Merlo-Wilson model" Mimeo, University of Warwick. Available on line at http://www.csgr.org

Ministerio de Economía y Producción (2005). *Informe Económico Trimestral* N°51, April , Buenos Aires, Argentina.
(Available at http://www.mecon.gov.ar/peconomica/informe/informe51/indice.htm)

Muthoo, A. (1999): *Bargaining Theory with Applications*. Cambridge: Cambridge University Press.

Nash, J. (1950). The bargaining problem. *Econometrica,* vol. 18, 155-162

Nash, J. (1951). "Non-cooperative Games," *Annals of Mathematics*, 54, 286-295.

Roubini N. and B. Setser (2004a) "The reform of the Sovereign Debt Restructuring Process: Problems, Proposed Solutions and the Argentine Episode". Mimeo. April.

Roubini N. and B. Setser (2004b) *Bailouts or Bail-ins? Responding to Financial Crises in Emerging Economies*. . Washington DC.: Institute for International Economics

Reinhart C. Rogoff K. and M. Savastano. 2003. "Debt Intolerance." Brookings Papers on Economic Activity 1: 1–74.

Rubinstein, N. (1982) "Perfect Equilibrium in a Bargaining Model" *Econometrica*, Vol. 50, No. 1. (January), pp. 97-110.

Schwarcz, S. L. (2000) "Sovereign Debt Restructuring: A Bankruptcy Reorganisation Approach". *Cornell Law Review,* 85(4) pp.956-1034.

Sgard, J. (2004) "IMF in Theory: Sovereign Debts, Judicialisation and Multilateralism" CEPI PP No 2004 –21 (December)

Sgard, J. (2005) “La dette argentine et le déclin du FMI” Lettre du CEPI **N° 241**

Shiller, R. (1993) *Macro Markets: creating institutions for managing society’s largest economic risks.* Oxford: Oxford University Press.

Taylor, J. (2002) “Sovereign Debt Restructuring: A US perspective”. Mimeo. Washington, DC: US Department of the Treasury

Williamson, J. (1995) *What role for Currency Boards?* Policy Analyses in International Economics No. 40. Washington, DC: IIE

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